In the Claims

1. (Original) A method for communicating optical traffic in a network comprising a plurality of network nodes, the method comprising:

receiving traffic to be added to the network at a network node, the network operable to communicate received traffic in an optical signal comprising one or more channels;

determining a data rate and one or more destination nodes of the received traffic;

assigning the received traffic to one or more of the channels of the optical signal based on the determined data rate and the one or more destination nodes;

configuring one or more of the network nodes to process the traffic contained in the assigned channels based on the data rate and the one or more destination nodes of the optical traffic; and

communicating the traffic through network in the assigned channels of the optical signal based on the determined data rate and the one or more destination nodes.

2. (Currently Amended) The method of Claim 1, wherein:

determining the data rate comprises determining that the data rate of the traffic comprises ~~approximately~~ from 100 Mbps to ~~approximately~~ 1 Gbps; and

communicating the optical traffic comprises communicating the optical traffic as optically-transmitted/electrically-selected/optically-dropped (OEO) traffic.

3. (Original) The method of Claim 2, wherein:

each node is operable to generate a first copy and a second copy of the optical signal received at the node;

determining the one or more destination nodes comprises determining that a first portion of the received traffic is destined for a first destination node and that a second portion of the received traffic is destined for a second destination node;

assigning the received traffic comprises assigning the first portion of the traffic destined for the first destination node to a first channel of the optical signal and assigning the second portion of the traffic destined for the second destination node to the first channel of the optical signal, and

configuring the one or more network nodes comprises configuring the first destination node to:

pass the traffic in at least the first channel of the first copy of the optical signal through a filter;

terminate the traffic in the first channel of the second copy of the optical signal;

forward the first portion of the passed traffic in the first channel of the first copy to one or more local clients associated with the first destination node; and

forward the second portion of the passed traffic in the first channel of the first copy to the second destination node.

4. (Original) The method of Claim 3, further comprising adding, at the first destination node, new traffic from the one or more local clients to the first channel of the first copy generated at the first destination node, the new traffic destined for the second destination node.

5. (Original) The method of Claim 3, wherein:

the second destination node is operable to generate a first copy and a second copy of the optical signal received at the second destination node;

configuring the one or more network nodes further comprises configuring the second destination node to:

pass the traffic in at least the first channel of a first copy through a filter;

terminate the traffic in the first channel of the second copy of the optical signal; and

forward the traffic in the first channel of the first copy to one or more local clients associated with the second destination node.

6. (Currently Amended) The method of Claim 1, wherein:

determining the data rate comprises determining that the data rate of the traffic comprises ~~approximately~~ from 1 Gbps to ~~approximately~~ 5 Gbps; and

communicating the optical traffic comprises communicating the optical traffic as point-to-multipoint traffic.

7. (Original) The method of Claim 6, wherein:

each node is operable to generate a fist copy and a second copy of the optical signal received at the first destination node

determining the one or more destination nodes comprises determining that at least a portion of the received traffic in the optical signal is destined for a first destination node and a second destination node;

assigning the received traffic comprises assigning the traffic destined for the first and second destination nodes to a first channel of the optical signal; and

configuring the one or more network nodes comprises configuring the first destination node to:

pass the traffic in at least the first channel of a first copy of the optical signal through a filter;

forward the second copy of the optical signal; and

forward the first channel of the passed traffic in the first copy generated at the first destination node to the one or more local clients associated with the first destination node.

8. (Original) The method of Claim 7, wherein:

the second destination node is operable to generate a first copy and a second copy of the optical signal received at the second destination node:

configuring the one or more network nodes further comprises configuring the second destination node to:

pass the traffic in at least the first channel of the first copy of the optical signal through a filter;

terminate the traffic in the first channel of the second copy of the of the optical signal; and

forward the traffic in the first channel of the first copy to one or more local clients associated with the second destination node.

9. (Currently Amended) The method of Claim 1, wherein:

determining the data rate comprises determining that the data rate of the optical traffic comprises greater than ~~approximately~~ 5 Gbps; and

communicating the optical traffic comprises communicating the optical traffic as point-to-point traffic.

10. (Original) The method of Claim 9, wherein:

a single destination node is operable to generate a first copy and a second copy of the optical signal received at the single destination node;

determining the one or more destination nodes comprises determining that at least a portion of the received traffic is destined for the single destination node;

assigning the received traffic comprises assigning the traffic destined for the single destination node to one channel of the received optical signal; and

configuring the one or more network nodes comprises configuring the single destination node to:

pass the traffic in at least one channel of the first copy of the optical signal through a filter;

terminate the traffic in the second copy of the optical signal;

forward the one channel of the passed traffic in the first copy generated at the single destination node to one or more local clients associated with the single destination node.

11. (Original) The method of Claim 1, wherein the optical traffic is communicated in one or more General Framing Procedure (GFP) frames and the destination of the optical traffic is contained within an extension header of the GFP frame.

12. (Original) An optical network operable to communicate traffic in an optical signal in one or more channels, the network comprising:

a plurality of network nodes operable to:

receive traffic to be added to the network at the node; and

communicate the received traffic through the network in the optical signal based on a data rate of the received traffic and one or more nodes for which the received traffic is destined; and

a network management system operable to:

determine the data rate of the received traffic;

determine the one or more destination nodes of the received traffic;

assign the received traffic to the one or more channels of the optical signal based on the determined data rate and the one or more destination nodes of the received traffic; and

configure one or more of the nodes on the network to process the traffic contained in the assigned channels based on the determined data rate and the one or more destination nodes of the received traffic.

13. (Currently Amended) The network of Claim 12, wherein:

the network management system is operable to determine that the data rate of the traffic comprises ~~approximately~~ from 100 Mbps to ~~approximately~~ 1 Gbps; and

one or more of the plurality of nodes are operable to communicate the optical traffic as optically-transmitted/electrically-selected/optically-dropped (OEO) traffic.

14. (Original) The network of Claim 13, wherein:

a first destination node comprises:

an optical coupler operable to receive the optical signal and generate a first copy and a second copy of the optical signal;

a rejection filter operable to selectively block or forward one or more channels of the second copy of the optical signal;

a distributing element operable to receive the first copy from the optical coupler and generate multiple copies of the first copy of the optical signal;

a plurality of tunable filters each operable to receive one of the multiple copies of the optical signal forwarded from the distributing element and to pass one or more channels of the received copy;

a plurality of optical receivers each operable to receive the passed channels from an associated tunable filter and convert the optical traffic in the passed channels to an electrical signal; and

a switch element operable to receive the forwarded electrical signals and selectively forward the electrical signals, or portions thereof, to a local client and/or to another network node, or terminate the electrical signals; and

the network management system is further operable to:

determine that a first portion of the traffic is destined for the first destination node and that a second portion of the traffic is destined for a second destination node;

assign the first portion of the traffic destined for the first destination node to a first channel of the optical signal;

assign the second portion of the traffic destined for the second destination node to the first channel of the optical signal;

configure a tunable filter of the first destination node to forward the first channel of the first copy of the optical signal to an optical receiver, the optical receiver operable to convert the optical signal to an electrical signal;

configuring the rejection filter of the first destination node to terminate the traffic in the first channel of the second copy of the optical signal;

configure the switch element of the first destination node to:

forward the electrical signals associated with the first portion of the traffic to one or more local clients associated with the first destination node; and

forward the electrical signals associated with the second portion of the traffic for communication to the second destination node.

15. (Original) The network of Claim 14, wherein the switch element of the first destination node is further operable to:

receive new traffic from the one or more local clients that is destined for the second destination node; and

add the new traffic to the second portion destined for the second destination node.

16. (Original) The network of Claim 14, wherein:

the second destination node comprises:

an optical coupler operable to receive the optical signal and generate a first copy and a second copy of the optical signal;

a rejection filter operable to selectively block or forward one or more channels of the second copy of the optical signal;

a distributing element operable to receive the first copy from the optical coupler and generate multiple copies of the first copy of the optical signal;

a plurality of tunable filters each operable to receive one of the multiple copies copy of the optical signal forwarded from the distributing element and to pass one or more channels of the received copy;

a plurality of optical receivers each operable to receive the passed channels from an associated tunable filter and convert the optical traffic in the passed channel to an electrical signal;

a switch element operable to receive the forwarded electrical signals and selectively forward the electrical signals, or portions thereof, to a local client and/or to another network node, or terminate the electrical signals; and

the network management system is further operable to:

configure the rejection filter of the second destination node to terminate the traffic in the second copy of the optical signal generated by the optical coupler of the second destination node;

configure a tunable filter of the second destination node to forward the first channel of the first copy of the optical signal generated by the optical coupler of the second destination node to an optical receiver of the second destination node, the optical receiver operable to convert the optical signal to an electrical signal; and

configure a switch element of the second destination node to forward the electrical signals associated with the traffic in first channel of the first copy to one or more local clients associated with the second destination node.

17. (Currently Amended) The network of Claim 12, wherein:

the network management system is operable to determine that the data rate of the traffic comprises ~~approximately~~ from 1 Gbps to ~~approximately~~ 5 Gbps; and

one or more of the plurality of nodes are operable to communicate the optical traffic as point-to-multipoint traffic.

18. (Currently Amended) The network of Claim 17, wherein:

a first destination node comprises:

an optical coupler operable to receive the optical signal and generate a first copy and a second copy of the optical signal;

a rejection filter operable to selectively block or forward one or more channels of the second copy of the optical signal;

a distributing element operable to receive the first copy from the optical coupler and generate multiple copies of the first copy of the optical signal;

a plurality of tunable filters each operable to receive one of the multiple copies of the optical signal forwarded from the distributing element and to pass one or more channels of the received copy;

a plurality of optical receivers each operable to receive the passed channels from an associated tunable filter and convert the optical traffic in the passed channels to an electrical signal;

a switch element operable to receive the forwarded electrical signals and selectively forward the electrical signals, or portions thereof, to a local client and/or to another network node, or terminate the electrical signals; and

the network management system is further operable to:

determine that at least a portion of the traffic is destined for the first destination node and a second destination node;

assign the at least a portion of the traffic destined for the first and second destination nodes to a first channel of the optical signal;

configure a tunable filter of the first destination node to forward the first channel of the first copy of the optical signal to an optical receiver, the optical receiver operable to convert the optical signal to an electrical signal;

configuring the rejection filter of the first destination node to terminate the traffic in the first channel of the second copy of the optical signal ~~tot he~~ to the second destination node;

configure the switch element of the first destination node to:

forward the electrical signals associated with the traffic to one or more local clients associated with the first destination node; and

forward the electrical signals associated with the traffic for communication to the second destination node.

19. (Original) The network of Claim 18, wherein:

the second destination node comprises:

an optical coupler operable to receive the optical signal and generate a first copy and a second copy of the optical signal;

a rejection filter operable to selectively block or forward one or more channels of the second copy of the optical signal;

a distributing element operable to receive the first copy from the optical coupler and generate multiple copies of the first copy of the optical signal;

a plurality of tunable filters each operable to receive one of the multiple copies of the optical signal forwarded from the distributing element and to pass one or more channels of the received copy;

a plurality of optical receivers each operable to receive the passed channels from the associated tunable filter and convert the optical traffic in the passed channel to an electrical signal;

a switch element operable to receive the forwarded electrical signals; and selectively forward the electrical signals, or portions thereof, to a local client and/or to another network node, or terminate the electrical signals; and

the network management system is further operable to:

configure the rejection filter of the second destination node to terminate the traffic in the second copy of the optical signal generated by the optical coupler of the second destination node;

configure a tunable filter of the second destination node to forward the first channel of the first copy of the optical signal generated by the optical coupler of the second destination node to the optical receivers of the second destination node, the optical receivers operable to convert the optical signals to an electrical signals; and

configure a switch element of the second destination node to forward the electrical signals associated with the traffic in first channel of the first copy to one or more local clients associated with the second destination node.

20. (Currently Amended) The network of Claim 12, wherein:

the network management system is operable to determine that the data rate of the optical traffic comprises greater than ~~approximately~~ 5 Gbps; and

one of more of the plurality of nodes are operable to communicate the optical traffic as point-to-point traffic.

21. (Original) The network of Claim 20, wherein:

a single destination node comprises:

an optical coupler operable to receive the optical signal and generate a first copy and a second copy of the optical signal;

a rejection filter operable to selectively block or forward one or more channels of the second copy of the optical signal;

a distributing element operable to receive the first copy from the optical coupler and generate multiple copies of the first copy of the optical signal;

a plurality of tunable filters each operable to receive one of the multiple copies of the optical signal forwarded from the distributing element and to pass one or more channels of the received copy;

a plurality of optical receivers each operable to receive the passed channels from an associated tunable filter and convert the optical traffic in the passed channels to an electrical signal;

a switch element operable to receive the forwarded electrical signals and selectively forward the electrical signals, or portions thereof, to a local client and/or to another network node, or terminate the electrical signals;

the network management system is further operable to:

determine that at least a portion of the traffic is destined for the single destination node;

assign the at least a portion of the traffic destined for single destination node to a first channel of the optical signal;

configure a tunable filter of the first destination node to forward the first channel of the first copy of the optical signal to an optical receiver, the optical receiver operable to convert the optical signal to an electrical signal;

configuring the rejection filter of the single destination node to terminate the traffic in the first channel of the second copy of the optical signal;

configure the switch element of the single destination node to forward the electrical signals associated with the traffic to one or more local clients associated with the single destination node.

22. (Original) The network of Claim 12, wherein the optical traffic is communicated in one or more General Framing Procedure (GFP) frames and the destination of the optical traffic is contained within an extension header of the GFP frame.

23. (New) The method of Claim 1, wherein communicating the optical traffic comprises communicating the optical traffic as one of optically-transmitted/electrically-selected/optically-dropped (OEO) traffic, point-to-multipoint traffic, or point-to-point traffic depending on the determined data rate.

24. (New) The network of Claim 12, wherein one of more of the plurality of nodes are operable to communicate the optical traffic as any of optically-transmitted/electrically-selected/optically-dropped (OEO) traffic, point-to-multipoint traffic, or point-to-point traffic depending on the determined data rate.